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quitted the apartment at thirteen minutes before three o'clock, and disencumbered himself of his apparatus in one of the lower rooms of the Institution. Mr. Pettigrew here examined his pulse, which was at 160, but subsided to 114 in about twenty minutes, and soon afterwards resumed its ordinary motion."

No. II.

IMPROVED MELTING POTS.

The Silver Vulcan Medal and Twenty Guineas were this session presented to Mr. L. Anstey, of Drummond-crescent, Somers-town, for his Improved Melting Pots for Iron and Brass Founders. Samples of the Pots are in the Society's Repository.

27, Drummond Crescent,
17th March, 1825.

Sir,

I herewith send a melting-pot of my manufacture, which, from several years' experience in the melting of cast-iron, I find to answer the purpose better than any which I have been enabled to procure. They are composed of two parts Stourbridge clay, and one part of the hardest coke, well ground and tempered together. Any further explanation I should be happy to give, if required.

I am, Sir,
&c. &c. &c.
L. Anstey.

A. Aikin, Esq.
Secretary, &c. &c.

The following particulars were stated by the Candidate to the Committee.

The composition employed by him, and first used six years ago by his late father, is the following:—Take two parts of fine ground raw Stourbridge clay, and one part of the hardest gas coke, previously pulverized and sifted through a sieve of one-eighth of an inch mesh. Mix the ingredients together with the proper quantity of water, and tread the mass well (if the coke is ground fine the pots are very apt to crack). The pot is moulded by hand on a wooden block, as shown Plate II. fig. 4, in which *a* is the bench; *b b* two uprights, supporting a cross board *c*, in which is a hole for the reception of the stem of the core; *d* the core, with its stem *e*, which passes loosely through the cross board *c*, and ends in a pin that turns in a hole in the bench; *f* is a gauge to regulate the thickness of the melting-pot, as shown by the dotted lines; *g* is a cap of linen, or cotton, placed wet on the core before the clay is put on; its use is to prevent the pot from sticking partially to the core while it is taking off; the cap adheres to the pot only while wet, and may be removed without trouble or hazard to the pot when dry: *h* is a wooden bat, to assist in moulding the pot; when moulded they are carefully dried at a gentle heat.

The smaller pots hold about twenty pounds of cast iron, and can be afforded for ten pence a-piece; the larger ones hold forty pounds, and may be afforded for fourteen pence.

A pot, dried as above, when wanted for use, is first warmed by the fire-side, and is then laid in the furnace with the mouth downwards (the red cokes being previously covered with cold ones, in order to damp the fire); more coke is then thrown in, till the pot is covered, and it is then brought gradually up to a red heat. The pot is then turned, and fixed in its proper position in the furnace, without being allowed to cool, and is then charged with cold iron, so that the metal, when melted, shall have its surface a little below the mouth of the pot. The iron is melted in about an hour and a half, and no flux or addition of any kind is used. A pot will last for fourteen or even eighteen successive fusions, provided it is not allowed in the intervals to cool; but if it cools it probably cracks. These pots will bear a higher heat than others without softening, and will consequently deliver the iron in a more fluid state than the best Birmingham pots will.

The cavity of the furnace employed by the candidate is eleven inches square in superficial area, and consists in depth of eleven rows of bricks, made of Stourbridge clay; the wind hole is four inches square, and is placed three inches below the top; the bars are either of wrought or cast iron, supported on wrought iron bearers. The ash-hole is ten courses of bricks below the bars, and the chimney is rather a high one. The sides of the furnace wear away by the heat, so that in the first week the cavity becomes two inches wider than at first. It is then brought up to its original width, by a lining of glass-cutters' mud, which consists of fine sand mixed with particles of glass; and this is renewed twice a week. The cavity of the furnace being only eleven inches across, and seven inches of that being occupied by the melting pot, it is of course necessary that the coke used as fuel should be broken into small pieces, not larger than a walnut.

At a subsequent meeting of the committee, D. Campbell, Esq., who had been requested to make some experiments on Mr. Anstey's pots, reported that he had melted a charge of iron in one of the smaller pots, placed in a powerful wind furnace; the pot remained sound.

Into a second pot was put a Wedgewood crucible, inclosing a blacklead one, and that a Cornish one; a cover was luted on, and the pot thus charged was kept for three hours in the same wind-furnace, and was brought unopened to the committee. On examination, Anstey's pot appeared to be quite entire; its shape had not altered, nor was there any change of texture, indicating an approach to fusion: it resisted several blows of a hammer before it broke. Of the crucibles inclosed in the pot, Wedgewood's had cracked to pieces, and the texture had become compact and semi-vitreous; the blacklead one had softened considerably, and had undergone a change of shape; the Cornish one was unaltered in shape, and nearly so in texture, having only become somewhat more compact.

A third pot had been exposed for an hour to a very high heat in the same furnace, being placed on a brick of Stourbridge clay; several small crucibles had been put into it, and a cover had been luted on. On examination, the pot had undergone no change, except that the slag of the coke, which was used as fuel, had glazed it over: beneath the glaze there were no signs of fusion, nor even any change of texture. The brick support was in the state of porcelain jasper; the cover had begun to sink in: the Cornish crucible which was inclosed showed a beginning of fusion; the Chelsea crucible was bubbly, and half melted.

An empty five-inch real Hessian crucible had been heated in the same furnace as strongly as possible: it had not sunk down at all; on being broken, the texture appeared porcellanous, with interspersed air bubbles, showing a beginning of fusion.

A white Birmingham pot was first annealed, and then heated (empty) in the same furnace. On examination by the committee, it was found to be cracked across the bottom, and its texture had become that of porous porcelain jasper.

Another white Birmingham pot was treated in the same manner as the former, and on examination presented several small cracks, and a porcellanous texture, but less porous than the preceding.

One of Anstey's large pots, in which five charges of iron had been melted, was shown to the committee: the form was unaltered; it withstood several blows of a hammer before it broke; the texture was granular, without any commencement of porcellanous.